

REMARKS

Claims 1-11, 15, 17, 18, 20-22 and 24-26 are pending in the application.

Claims 1-10 and 12-14 are rejected under 35 U.S.C. 103(a).

Claims 11, 15, 17-18, 20-22 and 24-26 are rejected under 35 U.S.C. 103(a).

Claims 1, 8 and 11 are amended. Specifically, claim 1 has been amended to incorporate features previously recited in claim 8 (which depends from claim 1) and claim 11 (which depends from claim 8).

Claims 12-14 have been cancelled.

No new matter is added.

Applicants request reconsideration and allowance of the claims in light of the above amendments and following remarks.

Claim Rejections – 35 U.S.C. § 103

Claims 1-10 and 12-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2002/0121661 to Nakamura (hereinafter “Nakamura”) in view of U.S. Patent No. 6,228,166 issued to Suzuki, et al. (hereinafter “Suzuki”) and/or U.S. Patent No. 6,231,673 issued to Maeda (hereinafter “Maeda”) and/or U.S. Patent No. 5,904,542 issued to Gilmer, et al. (hereinafter “Gilmer”). Applicants respectfully traverse this rejection.

As mentioned above, claim 1 has been amended to incorporate features previously recited in claims 8 and 11. The cited combination of Nakamura in view of Suzuki and/or Maeda and/or Gilmer fails to teach or suggest the combination of features now recited in claim 1.

Claims 11, 15, 17, 18, 20-22 and 24-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,140,208 issued to Agahi, et al. (hereinafter “Agahi”) in view of Nakamura and/or U.S. Patent No. 6,103,557 issued to Nakanishi (hereinafter “Nakanishi”), and further in view of Suzuki, Maeda and/or Gilmer. Applicants respectfully traverse this rejection.

Rejecting claims 11, 15 and 22, the Office Action asserts that it would have been obvious to form the insulating oxide layer 20 of Agahi “inside a ... CVD apparatus... [because] one of ordinary skill in the art would readily recognize that an oxide liner [(i.e., the insulating oxide

layer 20 of Agahi)] can be desirably formed with CVD method so as to achieve the desired liner conformity, as evidenced in Nakamura....”

Even if Nakamura teaches that a CVD oxide layer can be conformally deposited, Applicants respectfully submit that such a fact is insufficient to establish a *prima facie* case of obviousness because Agahi discloses that the insulating oxide layer 20 is conformally deposited using sputter techniques. See Agahi, column 5, lines 44-46. Because the alleged benefits of forming the insulating oxide layer 20 of Agahi according to CVD techniques (i.e., layer conformity) are already present in Agahi without modification, Applicants respectfully submit that it would not be desirable to modify Agahi using Nakamura as proposed “to achieve desired liner conformity” as suggested in the Office Action. Because it would not be desirable to modify Agahi using Nakamura as proposed “to achieve desired liner conformity” as suggested in the Office Action, Applicants respectfully submit that the proposed combination of Agahi in view of the cited references including Nakamura fails to render claims 11, 15 and 22 obvious. See M.P.E.P. 2143.01(I) and (IV).

In the “Response to Arguments” section, the Office Action attempts to support the above-described modification of Agahi using Nakamura by citing U.S. Patent No. 6,303,501 issued to Chen, et al. (hereinafter “Chen”) as evidence that it is allegedly “known that a layer formed through CVD method ... is generally superior in conformity and/or quality than a same-material layer formed through sputtering.” Even if Chen can be relied upon as evidence that layers formed by CVD are “generally superior” to layers formed by sputtering, Chen does not provide any teaching or suggestion that the insulating oxide layer 20 of Agahi (which is formed within an STI trench 17 by sputtering) is inferior, in terms of conformity or post-annealing qualities, to an oxide layer formed by CVD. Moreover, the Office Action fails to identify any specific understanding or knowledge indicating that the insulating oxide layer 20 of Agahi (which is formed within an STI trench 17 by sputtering) is inferior, in terms of conformity or post-annealing qualities, to an oxide layer formed by CVD. Because none of the cited references or the Office Action identify any teaching or suggestion indicating that the specifically described insulating oxide layer 20 of Agahi is inferior to an oxide layer formed by CVD, Applicants respectfully submit the Office Action fails to establish that it would be desirable (and thus obvious) to form the insulating oxide layer 20 of Agahi according to a CVD process. See M.P.E.P. § 2143.01(I).

Further rejecting claims 11, 15 and 22, the Office Action asserts that it would have been obvious to form the thermal oxide 23, the insulating oxide layer 20 and the silicon nitride line 43 of Agahi “inside a same CVD apparatus... [because] one of ordinary skill in the art would readily recognize... that an oxide layer and a nitride layer can both be formed through CVD in a same CVD apparatus so as to simplify the process, as evidenced in Nakanishi....”

Applicants respectfully submit, however, that Nakanishi teaches forming a silicon oxide and silicon nitride films within the same plasma CVD chamber. Nakanishi further characterizes plasma CVD methods as being “highly flexible” and allowing silicon oxide and nitride deposition at “a low temperature of 400°C.” See Nakanishi, column 2, lines 16-19. Nakanishi is silent as to any teaching or suggestion that the thermal oxide 23 of Agahi (which is formed at a temperature of about 1,000°C; see Agahi, column 5, lines 40-41) could even be formed in the plasma CVD chamber described in Nakanishi. Accordingly, Applicants respectfully submit that the combination of Agahi in view of Nakamura and/or Nakanishi, and further in view of Suzuki, Maeda and/or Gilmer fails to teach or suggest each and every element recited in claims 11, 15 and 22 and, therefore, fails to render the claims obvious. See M.P.E.P. § 2143.03.

Applicants respectfully submit that the arguments presented in the preceding paragraph above were identically presented in the Response dated February 8, 2007. To date, however, the substance of these arguments has not been answered, let alone addressed. As set forth at M.P.E.P. § 707.07(f): “[w]here the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it.” If the present rejection of claims 11, 15 and 22 is to be maintained, Applicants request that the substance of the arguments presented in the paragraphs above be answered. Otherwise, Applicants respectfully request withdrawal of the present rejection of claims 11, 15 and 22.

Claims 17-18, 20-21 and 24-26 variously depend from claims 15 and 22 and, therefore, include each and every element variously recited in claims 15 and 22. Accordingly, Applicants respectfully submit that the combination of Agahi in view of Nakamura and/or Nakanishi, and further in view of Suzuki, Maeda and/or Gilmer fails to render claims 17-18, 20-21 and 24-26 obvious for at least the reasons presented above with respect to claims 15 and 22.

Claim 1 recites elements similar to those recited in claims 11, 15 and 22. Accordingly, arguments presented above with respect to claims 11, 15 and 22 are similarly applicable with respect to claim 1.

Claims 2-10 depend from claim 1 and, therefore, include each and every element recited in claim 1. Accordingly, Applicants respectfully submit that the combination references fails to render claims 2-10 obvious for at least the reasons presented above with respect to claim 1.

CONCLUSION

For the foregoing reasons, reconsideration and allowance of the pending claims of the application as amended is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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